

TRASH BAG HOT AIR BALLOON

SCIENCE SAFETY

PLEASE follow these safety precautions when doing any science experiment.

- **ALWAYS** have an adult present.
- **ALWAYS** wear the correct safety gear while doing any experiment.
- **NEVER** eat or drink anything when performing any experiment.
- **REMEMBER** experiments may require marbles, small balls, balloons, and other small parts. Those objects could become a **CHOKING HAZARD**. Adults are to perform those experiments using these objects. Any child can choke or suffocate on uninflated or broken balloons. Keep uninflated or broken balloons away from children.

INGREDIENTS

- 30 Gallon Clear Trash Bag
- 4 Slice Toaster
- Large Tub

INSTRUCTIONS

STEP 1: Place the 4 slice toaster into the large tub.

Eye Safety



This symbol appears when a danger to the eyes exists. Safety goggles should be worn when this symbol appears.

STEP 2: Turn the toaster settings to the highest.

Eye Safety



This symbol appears when a danger to the eyes exists. Safety goggles should be worn when this symbol appears.

STEP 3: Push down each lever until the levers lock.

Thermal Safety



This symbol appears as a reminder to use caution when handling hot objects.

Eye Safety



This symbol appears when a danger to the eyes exists. Safety goggles should be worn when this symbol appears.

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HOOKED ON SCIENCE DISCLAIMER

Each Hooked on Science experiment is safe to perform with an adult present. If not performed correctly the experiment could be dangerous.

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STEP 4: Place the open end of the 30 gallon clear trash bag over the large tub. Hold the trash bag until it fills with hot air and lifts into the air. Make sure the trash bag does not touch the toaster.

Thermal Safety



This symbol appears as a reminder to use caution when handling hot objects.

Eye Safety



This symbol appears when a danger to the eyes exists. Safety goggles should be worn when this symbol appears.

EXPLANATION

The toaster heats up the air in the clear trash bag. When air is heated, it expands, and become less dense. This causes the trash bag to lift into the air.

EXPERIMENT LEARNING TARGETS

Heat is a form of energy, which is created by the movement of particles in a substance. Heat moves through some object better than others. Heat can move easily through conductors and not so easily through insulators. Metal is a good conductor, while wood and plastic are good insulators. Heat can travel from one location to another through conduction, convection, or radiation. Conduction is the transfer of heat between objects that are in direct contact with each other. Convection is the transfer of heat by currents through a liquid or gas. The flow of rising hot air within the trash bag creates a convection current, which heats the air, causing it to expand, become less dense, and eventually lift into the air. Radiation is the transfer of heat through space.

- I can give examples of heat conductors and insulators.
- I can explain the three ways heat is transferred.
- I can design an experiment that shows how heat is transferred through convection.

NEXT GENERATION SCIENCE STANDARDS CONNECTION

- 4 - Energy
- MS - Energy